

Chadwick & Trefethen, Inc.

BORTHWICK INDUSTRIAL PARK
PORTSMOUTH, N. H. 03801
Phone (603) 436-2568



SDMS DocID 559341

December 31, 1990

U.S. Environmental Protection Agency
Steven J. Calder, Remedial Project Manager
P.O. Box 5988
J.F. Kennedy Station
Boston, MA 02114

Superfund Records Center
SITE: Coakley
BREAK. 11.9
OTHER: 559341

Dear Mr. Calder:

Please find enclosed our answers to your questionnaire dated 12/14/90.

Sincerely,

Frank A Richards

Frank A Richards
President

FAR/jlg

Copy

Coakley Landfill Information 12/28/90
Answers to General Information Request - EPA

1. Frank A Richards, President, Chadwick & Trefethen, Inc. - respondent
David A Richards, V. President, Chadwick & Trefethen, Inc. - respondent
Jeremy Waldron, Boyton Waldron Doleac Woodman & Scott P.A. - consultant
Andrew Furlong, V. President, Ellis Insurance Agency - consultant
Dale Henderson, Mgr, Waste Management of NH-Rochester - consultant
Jean Holbrook, Asst. Mgr, Total Wast Mgt-Newington, TNH-0052 - consultant
2. Company files and records were searched for purpose of dates started on various programs and for MSDS. Consultants were interviewed by telephone. Most records of these transactions were unavailable as we retain records for only seven (7) years as required by I.R.S. and our company goes back 98 years.
3. A) In undertaking record search, we went to our files and looked to see pertinent information. Then went to stored files, seven years back is all we have available. Interviewing was done via telephone. We have monthly invoices from Waste Management of NH-Rochester.
B) Respondents and consultants as listed in question #1, would be the only ones who have information other than the City of Portsmouth NH, thru their weekly rubbish pickup service.
4. Other than those persons listed in question 1, we cannot identify directly any persons who have knowledge about disposal.
5. Incorporated: State of New Hampshire
Chadwick & Trefethen, Inc.
OFFICERS: 1970-1979
John R Parkhurst, President, Chm Bd
Frank A Richards, V President, Asst Trsr
James Millar, Clerk (1972-1979)
DIRECTORS: 1970-1979
John R Parkhurst/Chm Board
Marion Parkhurst
Frank A Richards
James Millar
OFFICERS: 1980-1985
John R Parkhurst, President, Chm Bd
Frank A Richards, V President
David A Richards, Asst Treasurer
Jane P Richards, Clerk
DIRECTORS: 1980-1985
John R Parkhurst/Chm Board
Frank A Richards
David A Richards
Jane P Richards
Marion Parhurst/deceased
1982
OFFICERS: 1986-Present
Frank A Richards, President, Asst Trsr
David A Richards, V President, Treasurer
Jane P Richards, Clerk
DIRECTORS: 1986-Present
Frank A Richards/Chm Board
David A Richards
Jane P Richards
John R Parkhurst
6. Chadwick & Trefethen, Inc., 50 Borthwick Industrial Park, Portsmouth, NH.
A) Same as above.
B) From 1982 to present.
C) Manufacturer of reamers from steel stock to finished product consists of typical machine processes on Lathes, Milling Machines, Grinders, Saws, Sharpening Grinders, marking, packaging, selling and distribution to distributors across the U.S.
D) We use steel Cold Rolled bars grade B12L14, Oil Hard Tool steel, M-2 High Speed steel, Cutting Oils, Hydraulic Oils and Preservation Oils. Cardboard & paper packaging materials, Grinding Wheels, plus normal small amounts of tools and accessory items used in any business, such as cleaning and office products.

6. E) Wastes generated consist mainly of steel chips, grinding wheel swarth, biodegradable cleaning solutions (BHC), coolants (Cimtech 100), cardboard, wood packaging materials and assorted garbage and water from office such as junk mail and human needs.
7. Enclosed copy: Corporate Income Tax - 1989
- 8-14. Not Applicable.
15. Our sole product is the reamers we sell to most major industrial distributors in the United States, who in turn sell to individual users.
16. Please see enclosed Liability Insurance sheet, Ellis Insurance Agency.
17. We do not have a current net worth statement, refer to question 7, assets on Corporate Income Tax return.
- 18-20. Not Applicable.
21. It is unknown, see 23-K below.
22. Yes.
Portsmouth, City of
Waste Management of NH-Rochester
23. A) We made arrangements with SCA Services in 1968 and have no record of the person. They have picked up steel chips, cardboard and wood scraps bimonthly since that time. The City of Portsmouth provides weekly pick up of normal office and personal waste.
B) Various people employed by Waste Management of NH-Rochester and City of Portsmouth employees.
C) City of Portsmouth: every Monday.
Waste Management of NH-Rochester: bimonthly on Monday.
D) City of Portsmouth picks up 3 or 4 barrels of office and personal garbage, floor sweepings, etc.. per week.
Waste Management of NH-Rochester empties a container of chips, grinding swarth, old cardboard and wood amounting to approximately 2 yards per month.
E) Chadwick & Trefethen, Inc.
F) Normal conversation between Chadwick & Trefethen and the 2 parties involved.
G) Steel chips turned and milled or ground solid waste (see MSDS).
H) See enclosed MSDS.
I) We have only MSDS supporting documents.
J) Same as above.
K) According to Waste Management of NH-Rochester, disposal was made at Turnkey Landfill, Rochester, NH. Not the Coakley Landfill site.
L) All persons selected by City of Portsmouth and Waste Management of NH.
M) Supporting monthly invoice copy represents current price, approximate price for period 1972-1980 was \$35.00 per month.
N) Unknown.
O) Unknown.
P) Unknown.
Q) Only records available are copies of current invoices.

24. Information not available.

25. Information not available.

2 Same as respondents.

27. Unknown.

A) We relied on our contractors to do the correct thing.

B) We had no products we used that seemed hazardous at the time not have we ever been to the Coakley Landfill site.

28. Like most companies we were not expecially cognizant of the perils involved with waste disposal. Thru the years involved we have tried dilligently to segregate all material determined by the federal and state governments to be hazardous.

A) We have developed and Employee Right to Know program for instruction to employees and have made information available to all.

B) We have changed our processes from cutting oils to biodegradeable materials. We separate oil and water from them by settling and centrifuge machines.

C) We have no documentation concerning practices and proceeedures.

29. We have no knowledge of any such activity.

Created: 12/28/90 Modified: 12/31/90 Reminder:

QUESTION 16 ANSWER

12/28/90

16. Liability Insurance : 1972-Present : Ellis Insurance Agency

YEAR	COMPANY	LIMITS OF LIABILITY	POLLUTION EXCLUSION	COVERS SUDDEN	COVERS NON-SUDDEN
1990-91	Commercial Union	\$1,000,000.	YES	NO	NO
1989-90	Commercial Union	\$1,000,000.	YES	NO	NO
1988-89	Maine Bonding	\$1,000,000.	YES	NO	NO
1987-88	Maine Bonding	\$500,000.	YES	NO	NO
1986-87	Maine Bonding	\$500,000.	YES	NO	NO
1985-86	Maine Bonding	\$500,000.	YES	NO	NO
1984-85	Maine Bonding	\$500,000.	YES	YES	NO
1983-84	Maine Bonding	\$300,000.	YES	YES	NO
1982-83	Maine Bonding	\$300,000.	YES	YES	NO
1981-82	Maine Bonding	\$300,000.	YES	YES	NO
1980-81	Maine Bonding	\$300,000.	YES	YES	NO
1979-80	New Hampshire	\$100,000.	YES	YES	NO
1978-79	New Hampshire	\$100,000.	YES	YES	NO
1977-78	New Hampshire	\$100,000.	YES	YES	NO
1976-77	New Hampshire	\$100,000.	YES	YES	NO
1975-76	New Hampshire	\$100,000.	YES	YES	NO
1974-75	New Hampshire	\$100,000.	YES	YES	NO
1973-74	New Hampshire	\$100,000.	YES	YES	NO
1972-73	New Hampshire	\$100,000.	YES	YES	NO

Created: 12/28/90 Modified:

Reminder:

Form **1120**
Department of the Treasury
Internal Revenue Service**U.S. Corporation Income Tax Return**

OMB No. 1545-0123

For calendar year 1989 or tax year beginning _____, 1989, ending _____, 19

▶ Instructions are separate. See page 1 for Paperwork Reduction Act Notice.

1989

Check if a—

- ☐ A Consolidated return
- ☐ B Personal holding co.
- ☐ C Personal service corp. (as defined in Temp Regs. sec. 1.441-4T—see instructions)

Use IRS label. Otherwise, please print or type.

Name

Chadwick & Trefethen Inc

Number and street (or P.O. box number if mail is not delivered to street address)

50 Borthwick Ave

City or town, state, and ZIP code

Portsmouth, NH 03801

D Employer identification number

02-0239026

E Date incorporated

Oct 30, 1956

F Total assets (see Specific Instructions)

\$ **328 163**G Check applicable boxes: (1) ☐ Initial return (2) ☐ Final return (3) ☐ Change in address

Income	1a Gross receipts or sales	530 549	b Less returns and allowances	143	c Balance ▶	1c	530 406
	2 Cost of goods sold and/or operations (Schedule A, line 7)					2	355 934
	3 Gross profit (line 1c less line 2)					3	174 472
	4 Dividends (Schedule C, line 19)					4	
	5 Interest					5	2 844
	6 Gross rents					6	
	7 Gross royalties					7	
	8 Capital gain net income (attach Schedule D (Form 1120))					8	
	9 Net gain or (loss) from Form 4797, Part II, line 18 (attach Form 4797)					9	
	10 Other income (see instructions—attach schedule)					10	
	11 Total income—Add lines 3 through 10					11	177 316
Deductions (See instructions—limitations on deductions.)	12 Compensation of officers (Schedule E, line 4)					12	89 190
	13a Salaries and wages	17 831	b Less jobs credit		c Balance ▶	13c	17 831
	14 Repairs					14	1 521
	15 Bad debts					15	
	16 Rents					16	
	17 Taxes					17	26 654
	18 Interest					18	2 579
	19 Contributions (see instructions for 10% limitation)					19	28
	20 Depreciation (attach Form 4562)		20	24 085			
	21 Less depreciation claimed on Schedule A and elsewhere on return		21a			21b	24 085
	22 Depletion					22	
23 Advertising					23	13 524	
24 Pension, profit-sharing, etc., plans					24		
25 Employee benefit programs					25		
26 Other deductions (attach schedule)					26	1 649	
27 Total deductions—Add lines 12 through 26					27	177 061	
28 Taxable income before net operating loss deduction and special deductions (line 11 less line 27)					28	255	
29 Less: a Net operating loss deduction (see instructions)		29a	255				
b Special deductions (Schedule C, line 20)		29b			29c	255	
Tax and Payments	30 Taxable income—Line 28 less line 29c					30	0
	31 Total tax (Schedule J, line 10)					31	0
	32 Payments: a 1988 overpayment credited to 1989	32a	1 500				
	b 1989 estimated tax payments	32b					
	c Less 1989 refund applied for on Form 4466	32c	()		d Balance ▶	32d	1 500
	e Tax deposited with Form 7004				32e		
	f Credit from regulated investment companies (attach Form 2439)				32f		
	g Credit for Federal tax on fuels (attach Form 4136)				32g		
	33 Enter any penalty for underpayment of estimated tax—Check <input type="checkbox"/> if Form 2220 is attached				33		
	34 Tax due—If the total of lines 31 and 33 is larger than line 32h, enter amount owed				34		
	35 Overpayment—If line 32h is larger than the total of lines 31 and 33, enter amount overpaid				35	1 500	
36 Enter amount of line 35 you want: Credited to 1990 estimated tax ▶ 1 500 Refunded ▶				36			

Please Sign here

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

Signature of officer

Date

Title

Paid Preparer's Use Only

Preparer's signature

Date

Check if self-employed ☒

Preparer's social security number

Firm's name (or yours if self-employed) and address

ARTHUR W. REARDON
TAX ASSISTANCE
175 Hillside Drive
Portsmouth, NH 03801

E.I. No.

02: 0307884

ZIP code ▶

Schedule A Cost of Goods Sold and/or Operations (See instructions for line 2, page 1.)

1	Inventory at beginning of year	1	145	261
2	Purchases	2	85	485
3	Cost of labor	3	155	800
4a	Additional section 263A costs (see instructions—attach schedule)	4a		
4b	Other costs (attach schedule)	4b	94	327
5	Total—Add lines 1 through 4b	5	480	873
6	Inventory at end of year	6	124	939
7	Cost of goods sold and/or operations—Line 5 less line 6. Enter here and on line 2, page 1.	7	355	934

8a Check all methods used for valuing closing inventory:

(i) ☒ Cost (ii) ☐ Lower of cost or market as described in Regulations section 1.471-4 (see instructions)

(iii) ☐ Writedown of "subnormal" goods as described in Regulations section 1.471-2(c) (see instructions)

(iv) ☐ Other (Specify method used and attach explanation.) _____

b Check if the LIFO inventory method was adopted this tax year for any goods (if checked, attach Form 970) ☐

c If the LIFO inventory method was used for this tax year, enter percentage (or amounts) of closing inventory computed under LIFO 8c

d Do the rules of section 263A (with respect to property produced or acquired for resale) apply to the corporation? ☐ Yes ☐ No

e Was there any change in determining quantities, cost, or valuations between opening and closing inventory? If "Yes," attach explanation ☐ Yes ☒ No

Schedule C Dividends and Special Deductions (See instructions.)

	(a) Dividends received	(b) %	(c) Special deductions: (a) × (b)
1 Dividends from less-than-20%-owned domestic corporations that are subject to the 70% deduction (other than debt-financed stock)		70	
2 Dividends from 20%-or-more-owned domestic corporations that are subject to the 80% deduction (other than debt-financed stock)		80	
3 Dividends on debt-financed stock of domestic and foreign corporations (section 246A)		see instructions	
4 Dividends on certain preferred stock of less than 40%-owned public utilities		100	
5 Dividends on certain preferred stock of other than public utilities			
6 Dividends from less-than-20%-owned foreign corporations and certain FSCs that are subject to the 70% deduction		70	
7 Dividends from 20%-or-more-owned foreign corporations and certain FSCs that are subject to the 80% deduction		80	
8 Dividends from wholly owned foreign subsidiaries subject to the 100% deduction (section 245(b))		100	
9 Total—Add lines 1 through 8. See instructions for limitation			
10 Dividends from domestic corporations received by a small business investment company operating under the Small Business Investment Act of 1958		100	
11 Dividends from certain FSCs that are subject to the 100% deduction (section 245(c)(1))		100	
12 Dividends from affiliated group members subject to the 100% deduction (section 243(a)(3))		100	
13 Other dividends from foreign corporations not included on lines 3, 6, 7, 8, or 11			
14 Income from controlled foreign corporations under subpart F (attach Forms 5471)			
15 Foreign dividend gross-up (section 78)			
16 IC-DISC and former DISC dividends not included on lines 1, 2, or 3 (section 246(d))			
17 Other dividends			
18 Deduction for dividends paid on certain preferred stock of public utilities (see instructions)			
19 Total dividends—Add lines 1 through 17. Enter here and on line 4, page 1.			
20 Total deductions—Add lines 9, 10, 11, 12, and 18. Enter here and on line 29b, page 1.			

Schedule E Compensation of Officers (See instructions for line 12, page 1.)

Complete Schedule E only if total receipts (line 1a, plus lines 4 through 10, of page 1, Form 1120) are \$500,000 or more.

(a) Name of officer	(b) Social security number	(c) Percent of time devoted to business	Percent of corporation stock owned		(f) Amount of compensation
			(d) Common	(e) Preferred	
1 Frank Richards	020-22-7167	100 %	14 %	%	24 910
David Richards	002-38-2402	100 %	3 %	%	27 339
Jane Richards	003-22-9624	as %	13 %	%	16 801
John Parkhurst	003-16-2231	needed %	37 %	%	20 140
		%	%	%	
2 Total compensation of officers					89 190
3 Less: Compensation of officers claimed on Schedule A and elsewhere on return					()
4 Compensation of officers deducted on line 12, page 1					89 190

Schedule J Tax Computation

1 Check if you are a member of a controlled group (see sections 1561 and 1563) <input type="checkbox"/>			
If the box on line 1 is checked:			
a Enter your share of the \$50,000 and \$25,000 taxable income bracket amounts (in that order):			
(i) \$	(ii) \$		
b Enter your share of the additional 5% tax (not to exceed \$11,750) ▶ \$			
3 Income tax (see instructions to figure the tax). Check this box if the corporation is a qualified personal service corporation (see instructions). ▶ <input type="checkbox"/>		3	
4a Foreign tax credit (attach Form 1118)	4a		
b Possessions tax credit (attach Form 5735)	4b		
c Orphan drug credit (attach Form 6765)	4c		
d Credit for fuel produced from a nonconventional source (see instructions)	4d		
e General business credit. Enter here and check which forms are attached:	4e		
<input type="checkbox"/> Form 3800 <input type="checkbox"/> Form 3468 <input type="checkbox"/> Form 5884			
<input type="checkbox"/> Form 6478 <input type="checkbox"/> Form 6765 <input type="checkbox"/> Form 8586	4f		
f Credit for prior year minimum tax (attach Form 8801)			
5 Total—Add lines 4a through 4f	5		
6 Line 3 less line 5	6		
7 Personal holding company tax (attach Schedule PH (Form 1120))	7		
8 Recapture taxes. Check if from: <input type="checkbox"/> Form 4255 <input type="checkbox"/> Form 8611	8		
9a Alternative minimum tax (attach Form 4626)	9a		
b Environmental tax (attach Form 4626)	9b		
10 Total tax—Add lines 6 through 9b. Enter here and on line 31, page 1	10		

Additional Information (See instruction F.)

	Yes	No		Yes	No
Refer to the list in the instructions and state the principal:					
(1) Business activity code no. ▶ <u>3 490</u>			K At any time during the tax year, did the corporation have an interest in or a signature or other authority over a financial account in a foreign country (such as a bank account, securities account, or other financial account)?		<input checked="" type="checkbox"/>
(2) Business activity ▶ <u>Manufacturing</u>			(See instruction F and filing requirements for form TD F 90-22.1.)		
(3) Product or service ▶ <u>Reamers</u>			If "Yes," enter name of foreign country ▶		
I (1) Did the corporation at the end of the tax year own, directly or indirectly, 50% or more of the voting stock of a domestic corporation? (For rules of attribution, see section 267(c).)		<input checked="" type="checkbox"/>	L Was the corporation the grantor of, or transferor to, a foreign trust that existed during the current tax year, whether or not the corporation has any beneficial interest in it?		<input checked="" type="checkbox"/>
If "Yes," attach a schedule showing: (a) name, address, and identifying number; (b) percentage owned; and (c) taxable income or (loss) before NOL and special deductions of such corporation for the tax year ending with or within your tax year.			If "Yes," the corporation may have to file Forms 3520, 3520-A, or 926.		
(2) Did any individual, partnership, corporation, estate, or trust at the end of the tax year own, directly or indirectly, 50% or more of the corporation's voting stock? (For rules of attribution, see section 267(c).) If "Yes," complete (a) through (c).		<input checked="" type="checkbox"/>	M During this tax year, did the corporation pay dividends (other than stock dividends and distributions in exchange for stock) in excess of the corporation's current and accumulated earnings and profits? (See sections 301 and 316.)		<input checked="" type="checkbox"/>
(a) Attach a schedule showing name, address, and identifying number.			If "Yes," file Form 5452. If this is a consolidated return, answer here for parent corporation and on Form 851, Affiliations Schedule, for each subsidiary.		
(b) Enter percentage owned ▶			N During this tax year, did the corporation maintain any part of its accounting/tax records on a computerized system?		<input checked="" type="checkbox"/>
(c) Was the owner of such voting stock a person other than a U.S. person? (See instructions.) Note: If "Yes," the corporation may have to file Form 5472.			O Check method of accounting:		
If "Yes," enter owner's country ▶			(1) <input type="checkbox"/> Cash		
J Was the corporation a U.S. shareholder of any controlled foreign corporation? (See sections 951 and 957.)		<input checked="" type="checkbox"/>	(2) <input checked="" type="checkbox"/> Accrual		
If "Yes," attach Form 5471 for each such corporation.			(3) <input type="checkbox"/> Other (specify) ▶		
			P Check this box if the corporation issued publicly offered debt instruments with original issue discount		<input type="checkbox"/>
			If so, the corporation may have to file Form 8281.		
			Q Enter the amount of tax-exempt interest received or accrued during the tax year ▶ \$		
			R Enter the number of shareholders at the end of the tax year if there were 35 or fewer shareholders ▶		

Schedule L Balance Sheets

Assets	Beginning of tax year		End of tax year	
	(a)	(b)	(c)	(d)
1 Cash		22 813		12 123
2 Trade notes and accounts receivable	38 476		57 643	
3 Less allowance for bad debts		38 476		57 643
4 Inventories		145 261		124 939
5 U.S. government obligations				
6 Tax-exempt securities (see instructions)				
7 Other current assets (attach schedule)		29 461		31 506
8 Loans to stockholders				
9 Mortgage and real estate loans				
10 Other investments (attach schedule)				
11a Buildings and other depreciable assets	403 223		445 223	
12 Less accumulated depreciation	339 043	64 180	363 128	82 095
13a Depletable assets				
14 Less accumulated depletion				
15 Land (net of any amortization)		6 357		6 357
16 Intangible assets (amortizable only)				
17 Less accumulated amortization				
18 Other assets (attach schedule)		32 000		13 500
19 Total assets		338 548		328 163
Liabilities and Stockholders' Equity				
20 Accounts payable		32		15
21 Mortgages, notes, bonds payable in less than 1 year		25 000		15 884
22 Other current liabilities (attach schedule)				
23 Loans from stockholders				
24 Mortgages, notes, bonds payable in 1 year or more				
25 Other liabilities (attach schedule)				
26 Capital stock: a Preferred stock				
27 b Common stock		71 035		71 035
28 Paid-in or capital surplus				
29 Retained earnings—Appropriated (attach schedule)				
30 Retained earnings—Unappropriated		242 481		241 229
31 Less cost of treasury stock		()		()
32 Total liabilities and stockholders' equity		338 548		328 163

Schedule M-1 Reconciliation of Income per Books With Income per Return (You are not required to complete this schedule if the total assets on line 15, column (d), of Schedule L are less than \$25,000.)

1 Net income per books	(1 252)	7 Income recorded on books this year not included on this return (itemize):	
2 Federal income tax		a Tax-exempt interest \$	
3 Excess of capital losses over capital gains			
4 Income subject to tax not recorded on books this year (itemize):			
5 Expenses recorded on books this year not deducted on this return (itemize):		8 Deductions on this return not charged against book income this year (itemize):	
a Depreciation		a Depreciation	
b Contributions carryover \$ 1 507		b Contributions carryover \$	
c Travel and entertainment			
	1 507		
6 Total of lines 1 through 5	255	9 Total of lines 7 and 8	
		10 Income (line 28, page 1)—line 6 less line 9	255

Schedule M-2 Analysis of Unappropriated Retained Earnings per Books (line 25, Schedule L) (You are not required to complete this schedule if the total assets on line 15, column (d), of Schedule L are less than \$25,000.)

1 Balance at beginning of year	242 481	5 Distributions: a Cash	
2 Net income per books	(1 252)	b Stock	
3 Other increases (itemize):		c Property	
		6 Other decreases (itemize):	
4 Total of lines 1, 2, and 3	241 229	7 Total of lines 5 and 6	
		8 Balance at end of year (line 4 less line 7)	241 229

Depreciation and Amortization

OMB No. 1545-0172

Department of the Treasury
Internal Revenue Service▶ See separate instructions.
▶ Attach this form to your return.**1989**
Attachment
Sequence No **67**

ne(s) as shown on return

Chadwick & Trefethen, IncIdentifying number
02-0239026

Business or activity to which this form relates

Manufacturing**Part I Depreciation** (Use Part III for automobiles, certain other vehicles, computers, and property used for entertainment, recreation, or amusement.)**Section A.—Election To Expense Depreciable Assets (Section 179)**

1 Maximum dollar limitation	1	\$10,000
2 Total cost of section 179 property placed in service during the tax year (see instructions)	2	
3 Threshold cost of section 179 property before reduction in limitation	3	\$200,000
4 Reduction in limitation (Subtract line 3 from line 2, but do not enter less than -0-.)	4	
5 Dollar limitation for tax year (Subtract line 4 from line 1, but do not enter less than -0-.)	5	
(a) Description of property	(b) Date placed in service	(c) Cost
6		
7 Listed property—Enter amount from line 28	7	
8 Tentative deduction (Enter the lesser of: (a) line 6 plus line 7; or (b) line 5.)	8	
9 Taxable income limitation (Enter the lesser of: (a) Taxable income; or (b) line 5) (see instructions)	9	
10 Carryover of disallowed deduction from 1988 (see instructions)	10	
11 Section 179 expense deduction (Enter the lesser of: (a) line 8 plus line 10; or (b) line 9.)	11	
12 Carryover of disallowed deduction to 1990 (Add lines 8 and 10, less line 11.)	12	

Section B.—MACRS Depreciation

(a) Classification of property	(b) Date placed in service	(c) Basis for depreciation (Business use only—see instructions)	(d) Recovery period	(e) Convention	(f) Method	(g) Depreciation deduction
13 General Depreciation System (GDS) (see instructions): <i>For assets placed in service ONLY during tax year beginning in 1989</i>						
a 3-year property						
b 5-year property						
c 7-year property						
d 10-year property						
e 15-year property		42,000	15 yrs.		DDB	2 100
f 20-year property						
g Residential rental property			27.5 yrs.	MM	S/L	
h Nonresidential real property			31.5 yrs.	MM	S/L	
			31.5 yrs.	MM	S/L	

14 Alternative Depreciation System (ADS) (see instructions): For assets placed in service ONLY during tax year beginning in 1989

a Class life					S/L	
b 12-year			12 yrs.		S/L	
c 40-year			40 yrs.	MM	S/L	

15 Listed property—Enter amount from line 27	15	3 991
16 GDS and ADS deductions for assets placed in service before 1989 (see instructions)	16	2 052

Section C.—ACRS and/or Other Depreciation

17 Property subject to section 168(f)(1) election (see instructions)	17	
18 ACRS and/or other depreciation (see instructions)	18	15 942

Section D.—Summary

19 Total (Add deductions on line 11 and lines 13 through 18.) Enter here and on the appropriate line of your return (Partnerships and S corporations—see instructions.)	19	24 085
20 For assets shown above and placed in service during the current year, enter the portion of the basis attributable to section 263A costs (see instructions).	20	

For Paperwork Reduction Act Notice, see page 1 of the separate instructions.

Part II Amortization

(a) Description of property	(b) Date amortization begins	(c) Cost or other basis	(d) Code section	(e) Amortization period or percentage	(f) Amortization for this year
1 Amortization for property placed in service only during tax year beginning in 1989					
22 Amortization for property placed in service before 1989				22	
23 Total. Enter here and on "Other Deductions" or "Other Expenses" line of your return				23	

Part III Listed Property.—Automobiles, Certain Other Vehicles, Computers, and Property Used for Entertainment, Recreation, or Amusement

If you are using the standard mileage rate or deducting vehicle lease expense, complete columns (a) through (d) of Section A, all of Section B, and Section C if applicable.

Section A.—Depreciation (Caution: See instructions for limitations for automobiles.)

24a Do you have evidence to support the business use claimed? <input type="checkbox"/> Yes <input type="checkbox"/> No		24b If "Yes," is the evidence written? <input type="checkbox"/> Yes <input type="checkbox"/> No						
(a) Type of property (list vehicles first)	(b) Date placed in service	(c) Business use percentage (%)	(d) Cost or other basis (see instructions for leased property)	(e) Basis for depreciation — business use only	(f) Recovery period	(g) Method	(h) Depreciation deduction	(i) Elected section 179 cost
25 Property used more than 50% in a trade or business:								
1988 Cutless	06/88	100	13 858	13 858	5	DDB	3 991	
26 Property used 50% or less in a trade or business:								
						S/L		
						S/L		
						S/L		
27 Total (Enter here and on line 15, page 1.)							27	3 991
28 Total (Enter here and on line 7, page 1.)							28	

Section B.—Information Regarding Use of Vehicles—If you deduct expenses for vehicles:

Always complete this section for vehicles used by a sole proprietor, partner, or other "more than 5% owner," or related person. If you provided vehicles to your employees, first answer the questions in Section C to see if you meet an exception to completing this section for those vehicles.

	(a)		(b)		(c)		(d)		(e)		(f)	
	Vehicle 1		Vehicle 2		Vehicle 3		Vehicle 4		Vehicle 5		Vehicle 6	
29 Total business miles driven during the year (DO NOT include commuting miles)												
30 Total commuting miles driven during the year												
31 Total other personal (noncommuting) miles driven												
32 Total miles driven during the year (Add lines 29 through 31)												
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
33 Was the vehicle available for personal use during off-duty hours?												
34 Was the vehicle used primarily by a more than 5% owner or related person?												
35 Is another vehicle available for personal use?												

Section C.—Questions for Employers Who Provide Vehicles for Use by Their Employees

(Answer these questions to determine if you meet an exception to completing Section B. Note: Section B must always be completed for vehicles used by sole proprietors, partners, or other more than 5% owners or related persons.)

	Yes	No
36 Do you maintain a written policy statement that prohibits all personal use of vehicles, including commuting, by your employees?		
37 Do you maintain a written policy statement that prohibits personal use of vehicles, except commuting, by your employees? (See instructions for vehicles used by corporate officers, directors, or 1% or more owners.)		
38 Do you treat all use of vehicles by employees as personal use?		
39 Do you provide more than five vehicles to your employees and retain the information received from your employees concerning the use of the vehicles?		
40 Do you meet the requirements concerning qualified automobile demonstration use (see instructions)?		
Note: If your answer to 36, 37, 38, 39, or 40 is "Yes," you need not complete Section B for the covered vehicles.		

Chadwick & Trefethen, Inc..
Portsmouth, NH 03801
E.I. #02-0239026

Form 1120, 1989

Page 2, Schedule A, Other Cost:

Prepaid Freight	\$15 130
Office Supplies	3 615
Insurance	13 659
Telephone	2 390
Electricity	8 734
Gas	3 204
Water	406
Oil	803
Shipping Supplies	4 871
Maintenance	950
Employee BC/Bluc Shield	<u>40 565</u>
	\$94 327
	<u><u> </u></u>

Page 1, Line 26, Other Expenses:

Miscellaneous	\$ 806
Vehicles	<u>843</u>
	\$ 1 649
	<u><u> </u></u>

Page 1, Line 29A, Net Operating Less Deductions:

Carry forward from 1987	\$ 255
-------------------------	--------

KEEP THIS COPY
FOR YOUR FILES

Question 23 - part m + p

INVOICE

FROM: WASTE MGMT OF NH-ROCHESTER
ATTN: COMMERCIAL
BOX 7065
LC NH 03839

ACCOUNT NUMBER
274276 CO 0008681
INVOICE NUMBER
022143
DATE
12/03/90

TO: CHADWICK & TREFETHEN
BOTHWICK INDUST PK
PORTSMOUTH NH 03801

PAGE 1 OF 1

BILLING INQUIRIES: 603/332-2386 SERVICE INQUIRIES: 603/332-2386

DATE	REFERENCE NUMBER	QUANTITY	DESCRIPTION	AMOUNT
11/02			PREVIOUS BALANCE	61.00
11/20			PAYMENT RECEIVED	61.00
			BALANCE FORWARD	0.00
			CHADWICK & TREFETHEN BORTHWICK INDUST. PARK PORTSMOUTH NH 03801	
			MONTHLY SERVICE - 2 YD CONTAINER DECEMBER	61.00
			TOTAL CURRENT CHARGES	61.00
			TOTAL AMOUNT NOW DUE	61.00

BILLING QUESTIONS? CONTACT MONA RASCH AT (603) 332-2386.

WE OFFER A FULL LINE OF SERVICES: ROLL-OFF, PORT-O-LET'S,
MODULAIRE OFFICES, STORAGE CONTAINERS AND FENCING.

THANK YOU FOR YOUR BUSINESS. WE APPRECIATE HAVING YOU AS
ONE OF OUR CUSTOMERS.

4128

Question 23 parts Q
part M

Question 23 h.

QUESTION 6-E-BHC

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME SPARTAN CHEMICAL COMPANY, INC.		EMERGENCY TELEPHONE NO. 419/531-5551
ADDRESS (Number, Street, City, State, and ZIP Code) 110 North Westwood Avenue, Toledo, OH 43607		
CHEMICAL NAME AND SYNONYMS n/a		TRADE NAME AND SYNONYMS H2-D2
CHEMICAL FAMILY n/a	FORMULA n/a	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Ethylene glycol mono butyl ether				15	50 ppm (sk)
Potassium hydroxide				7	---

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	212	SPECIFIC GRAVITY (H ₂ O=1)	1.075
VAPOR PRESSURE (mm Hg.)	18	PERCENT VOLATILE BY VOLUME (%)	82
VAPOR DENSITY (AIR=1)	unknown	EVAPORATION RATE (but ace. =1)	< 1
SOLUBILITY IN WATER	complete		
APPEARANCE AND ODOR Orange; butyl odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	none	FLAMMABLE LIMITS	n/a	LeI	UeI
EXTINGUISHING MEDIA	n/a				
SPECIAL FIRE FIGHTING PROCEDURES n/a					
UNUSUAL FIRE AND EXPLOSION HAZARDS n/a					

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	n/a
EFFECTS OF OVEREXPOSURE	corrosive -- will harm skin on extended or repeated contact.
EMERGENCY AND FIRST AID PROCEDURES	
INTERNAL: Give large quantities of water. If available, follow w/citrus juice or diluted vinegar; EXTERNAL: Flood w/water; EYES: Irrigate well w/water. If irritated, call physician	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	do not mix w/acids
INCOMPATIBILITY (Materials to avoid)		none	
HAZARDOUS DECOMPOSITION PRODUCTS		none	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	none

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
flush through normal sewer system	
WASTE DISPOSAL METHOD	
same as above	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)		nothing special; avoid prolonged breathing of vapors.	
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES		EYE PROTECTION	
resistant gloves		safety glasses	
OTHER PROTECTIVE EQUIPMENT		none	

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
nothing special	
OTHER PRECAUTIONS	none

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Spartan Chemical Co., Inc.		EMERGENCY TELEPHONE NO. (419) 531-5551
ADDRESS (Number, Street, City, State, and ZIP Code) 110 N. Westwood Ave., Toledo, Ohio 43607		
CHEMICAL NAME AND SYNONYMS n/a	TRADE NAME AND SYNONYMS THE COOLER	
CHEMICAL FAMILY n/a	FORMULA n/a	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
None					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	212-215	SPECIFIC GRAVITY (H ₂ O=1)	1.04
VAPOR PRESSURE (mm Hg.)	18	PERCENT VOLATILE BY VOLUME (%)	66.5
VAPOR DENSITY (AIR=1)	unknown	EVAPORATION RATE (but. ace. =1)	less than 1
SOLUBILITY IN WATER	complete		
APPEARANCE AND ODOR	Blue, moderately viscous water based liquid with pine odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	n/a	LM	UM
EXTINGUISHING MEDIA	n/a				
SPECIAL FIRE FIGHTING PROCEDURES	n/a				
UNUSUAL FIRE AND EXPLOSION HAZARDS	n/a				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	n/a
EFFECTS OF OVEREXPOSURE	
EMERGENCY AND FIRST AID PROCEDURES	
INTERNAL: If swallowed, give fruit juices or vinegar and induce vomiting. EYES: Irrigate well with water. If irritated, call a physician.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID n/a
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		n/a	
HAZARDOUS DECOMPOSITION PRODUCTS		n/a	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID n/a
	WILL NOT OCCUR	XX	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Flush with water through normal sewer system.	
WASTE DISPOSAL METHOD	
Same as above.	

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type) n/a		
VENTILATION	LOCAL EXHAUST Not necessary	SPECIAL
	MECHANICAL (General) Not necessary	OTHER
PROTECTIVE GLOVES	Not necessary	EYE PROTECTION Yes
OTHER PROTECTIVE EQUIPMENT None		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	n/a
OTHER PRECAUTIONS	
n/a	

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME SPARTAN CHEMICAL CO., INC.		EMERGENCY TELEPHONE NO. (419) 531-5551
ADDRESS (Number, Street, City, State, and ZIP Code) 110 N. Westwood Ave., Toledo, OH 43607		
CHEMICAL NAME AND SYNONYMS n/a		TRADE NAME AND SYNONYMS THE GRINDER
CHEMICAL FAMILY n/a	FORMULA n/a	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
NONE					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	212-215	SPECIFIC GRAVITY (H ₂ O=1)	1.06
VAPOR PRESSURE (mm Hg.)	18	PERCENT, VOLATILE BY VOLUME (%)	64.0
VAPOR DENSITY (AIR=1)	Unknown	EVAPORATION RATE (but see =1)	less than 1
SOLUBILITY IN WATER	Complete		
APPEARANCE AND ODOR blue, water based, odorless liquid			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	n/a	n/a		
SPECIAL FIRE FIGHTING PROCEDURES n/a				
UNUSUAL FIRE AND EXPLOSION HAZARDS n/a				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	n/a
EFFECTS OF OVEREXPOSURE	
No adverse effects. Product is designed to be diluted with water.	
EMERGENCY AND FIRST AID PROCEDURES	
INTERNAL: If swallowed, give fruit juice or vinegar and induce vomiting. EYES: Irrigate well with water. If irritated, call a physician.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	x	n/a
INCOMPATIBILITY (Materials to avoid)			
n/a			
HAZARDOUS DECOMPOSITION PRODUCTS			
n/a			
HAZARDOUS POLYMERIZATION	MAY OCCUR	.	CONDITIONS TO AVOID
	WILL NOT OCCUR	x	n/a

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Flush with water through normal sewer system.	
WASTE DISPOSAL METHOD	
Same as above.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
n/a			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES		EYE PROTECTION	
not necessary		safety glasses or goggles	
OTHER PROTECTIVE EQUIPMENT			
None			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	n/a
OTHER PRECAUTIONS	
n/a	

Question 23 h.

Question 6-E

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Products Division/Cincinnati Milacron Marketing Co.		EMERGENCY TELEPHONE NO. (513) 841-8181
ADDRESS (Number, Street, City, State, and ZIP Code) 4701 Marburg Avenue, Cincinnati, OH 45209		
CHEMICAL NAME AND SYNONYMS Not applicable (NA)		TRADE NAME AND SYNONYMS CIMPERIAL TOTT
CHEMICAL FAMILY NA	FORMULA Complex mixture	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	none		BASE METAL	none	
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS	none	
OTHERS	none				
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	not determined	SPECIFIC GRAVITY (H ₂ O=1)	0.999
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____ =1)	NA
SOLUBILITY IN WATER	appreciable; emulsifiable		
APPEARANCE AND ODOR	hazy; sassafras		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 335°F (168°C) Fire Point: 365°F (COC)	FLAMMABLE LIMITS NA	Lel	Uel
EXTINGUISHING MEDIA Foam, carbon dioxide			
SPECIAL FIRE FIGHTING PROCEDURES NA			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

4 HYDRAULIC OIL
Operation 23-B

TEXACO INC.
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL
SAFETY DATA SHEET



NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION
HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms

00700 REGAL OIL R&O 32

Manufacturer's Name

Texaco Inc.

Emergency Telephone No.

(914) 831-3400 ext. 204

Address

P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description

Turbine Oils

THIS PRODUCT IS CLASSIFIED AS.

☒ X

NOT HAZARDOUS:

☐ HAZARDOUS BY DEFINITION NO.(S)

☐ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:

NONE CONSIDERED NECESSARY

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes:

Chemical type goggles or face shield optional.

Skin:

Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.

Inhalation:

None required if exposures are within permissible concentrations; see below.

Ventilation

Normal

Permissible Concentrations:

Air:

5 mg/cubic meter of air for mineral oil mist averaged over an 8 hour daily exposure (ACGIH, 1984-85).

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes:

As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

Skin:

None considered necessary.

Ingestion:

None considered necessary.

Inhalation:

None considered necessary.

Other Instructions:

None.

N.D. - Not Determined
< - Less Than

N.A. - Not Applicable
> - Greater Than



PHYSIOLOGICAL EFFECTS:

Code
No. 00700

Effects of Exposure

Acute:

Eyes: Believed to be minimally irritating.

Skin: Believed to be minimally irritating.

Respiratory System: Believed to be minimally irritating if not in excess of permissible concentrations; see page 1.

Chronic: N.D.

Other: -

Sensitization Properties:

Skin: Yes ☐ No ☐ Unknown ☒

Respiratory: Yes ☐ No ☐ Unknown ☒

Median Lethal Dose (LD₅₀ LC₅₀) (Species)

Oral Similar product >10 g/kg (rat); practically non-toxic

Inhalation N.D.

Dermal Similar product >8 g/kg (rabbit); practically non-toxic

Other N. D.

Irritation Index, Estimation of Irritation (Species)

Skin Similar product 0.13/8.0 (rabbit); no appreciable effect

Eyes Similar product 2.33/110 (rabbit); no appreciable effect

Symptoms of Exposure See above

FIRE PROTECTION INFORMATION

Ignition Temp. °F. N.D. Flash Point °F. (Method) 335 F (pm)

Flammable Limits (%) Lower N.D. Upper N.D.

Products Evolved When Subjected to Heat or Combustion:
Carbon monoxide, carbon dioxide, aldehydes and ketones, combustion products of nitrogen and sulfur.

Recommended Fire Extinguishing Agents And Special Procedures

According to the National Fire Protection Association Guide, use water spray, dry chemical, foam, or carbon dioxide.

Water or foam may cause frothing. Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

Unusual or Explosive Hazards:

None.

**ENVIRONMENTAL PROTECTION**Code
No. 00700

Waste Disposal Method

Under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixture, processes, etc. may render the resulting material hazardous. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

Remarks.

Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

PRECAUTIONS

NONE CONSIDERED NECESSARY

Requirements for Transportation, Handling and Storage

Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable): N.A.

CHEMICAL AND PHYSICAL PROPERTIESBoiling Point (°F) N.D. Vapor Pressure N.D. (mmHg)Specific Gravity .8681 (H₂O=1) Vapor Density N.D. (Air=1)Appearance and Odor N.D.pH of undiluted product N.A.Solubility N.D.Percent Volatile by Volume N.D.Evaporation N.D. ()=1Viscosity cSt @ 40 C = 30.5Other -Hazardous Polymerizations Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for further details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
					X

N.D. - Not Determined
< - Less Than

N.A. - Not Applicable
> - Greater Than

**COMPOSITION**Code
No. 00700

<u>Chemical/Common Name</u>	<u>CAS No.</u>	<u>Exposure Limit</u>	<u>Range in %</u>
Solvent-dewaxed heavy paraffinic petroleum di- stillates	64742650	5.0mg/m3 TWA	95.00 - 99.99

To the best of our knowledge, none of the above listed components is hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

**PRODUCT SHIPPING LABEL**Code
No.

00700

00700 REGAL OIL R&O 32

NONE CONSIDERED NECESSARY

<u>Chemical/Common Name</u>	<u>CAS No.</u>	<u>Exposure Limit</u>	<u>Range in %</u>
Solvent-dewaxed heavy paraffinic petroleum distillates	64742650	5.0mg/m3 TWA	95.00 - 99.99

To the best of our knowledge, none of the above listed components is hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

	HMIS	
Health	: 0	Reactivity : 0
Flammability	: 1	Special : -

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:

Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals/Additives
call (409) 722-8381
Transportation Spills
call CHEMTREC (800) 424-9300

**PRODUCT SHIPPING LABEL**Code
No. 00700

00700 REGAL OIL R&O 32

NONE CONSIDERED NECESSARY

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
Solvent-dewaxed heavy paraffinic petroleum distillates	64742650	5.0mg/m3 TWA	95.00 - 99.99

To the best of our knowledge, none of the above listed components is hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS	
Health : 0	Reactivity : 0
Flammability: 1	Special : -

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:

Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals/Additives
call (409) 722-8381
Transportation Spills
call CHEMTREC (800) 424-9300

LUBRICATING OIL
+
HYDRAULIC OIL

TEXACO INC.

INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL
SAFETY DATA SHEET



Direction 23h.

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION
HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 02234 CLEARTEX D	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 831-3400 ext. 204
Address P.O. Box 509 Beacon, NY 12508	
Chemical Name and/or Family or Description Metal working Oils	
THIS PRODUCT IS CLASSIFIED AS: <u> X </u> NOT HAZARDOUS: <u> </u> HAZARDOUS BY DEFINITION NO.(S) <u> </u> ON ATTACHED EXPLANATION SHEETS	
WARNING STATEMENT: NONE CONSIDERED NECESSARY	
OCCUPATIONAL CONTROL PROCEDURES	
Protective Equipment (Type) Eyes: Chemical type goggles or face shield optional. Skin: Exposed employes should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly. Inhalation: None required if exposures are within permissible concentrations; see below. Ventilation: Normal	
Permissible Concentrations: Air: 5 mg/cubic meter of air for mineral oil mist averaged over an 8 hour daily exposure (ACGIH 1984-85).	
EMERGENCY AND FIRST AID PROCEDURES	
First Aid Eyes: As with most foreign materials, should eye contact occur, flush eyes with plenty of water. Skin: None considered necessary. Ingestion: None considered necessary. Inhalation: None considered necessary. Other Instructions: None.	

**PHYSIOLOGICAL EFFECTS:**Code
No. 02234**Effects of Exposure****Acute:**

Eyes: Believed to be minimally irritating.

Skin: Believed to be minimally irritating.

Respiratory System: Believed to be minimally irritating if not in excess of permissible concentrations; see page 1.

Chronic: N.D.

Other: -

Sensitization Properties:Skin: Yes ☐ No ☒ Unknown ☐Respiratory: Yes ☐ No ☐ Unknown ☒**Median Lethal Dose (LD₅₀ LC₅₀) (Species)**Oral Similar product >20g/kg (rat); practically non-toxicInhalation N.D.Dermal Similar product >20 g/kg (rabbit); practically non-toxicOther N. D.**Irritation Index, Estimation of Irritation (Species)**Skin Similar product 2.79/8.0 (rabbit); slightly irritatingEyes Similar product 7.33/110 (rabbit); no appreciable effectSymptoms of Exposure See above.**FIRE PROTECTION INFORMATION**Ignition Temp. °F N.D.Flash Point °F (Method) 370 °F (COC)Flammable Limits (%) Lower N.D.Upper N.D.**Products Evolved When Subjected to Heat or Combustion.**

Carbon monoxide, carbon dioxide, aldehydes and ketones, combustion products of nitrogen and sulfur.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide, use water spray, dry chemical, foam, or carbon dioxide.

Water or foam may cause frothing. Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

Unusual or Explosive Hazards

None.

N.D. - Not Determined

NA - Not Applicable

< - Less Than

> - Greater Than

**ENVIRONMENTAL PROTECTION**Code
No. 02234**Waste Disposal Method:**

Under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixture, processes, etc. may render the resulting material hazardous. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

Remarks:

Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

PRECAUTIONS

NONE CONSIDERED NECESSARY

Requirements for Transportation, Handling and Storage.

Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

DOT Proper Shipping Name N.A.

DOT Hazard Class (if applicable) N.A.

CHEMICAL AND PHYSICAL PROPERTIESBoiling Point (°F) N.D. Vapor Pressure N.D. (mmHg)Specific Gravity .8871 (H₂O=1) Vapor Density N.D. (Air=1)Appearance and Odor clear, orange liquidpH of undiluted product N.A.Solubility Neg.Percent Volatile by Volume N.D.Evaporation N.D. ()=1Viscosity 31.1 cSt @ 40 °COther -Hazardous Polymerizations Occur X Do not occur

The Material Reacts Violently With. (If others is checked below, see additional comments on page 6 for further details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
					X

N.D. - Not Determined
< - Less Than

N.A. - Not Applicable
> - Greater Than



POSITION

Code
No.

02234

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
Solvent-dewaxed heavy paraffinic petroleum di- stillates	64742650	5.0mg/m3 , TWA	95.00 - 99.99
Chlorinated olefins	68527015		1.00 - 3.99

To the best of our knowledge, none of the above listed components is hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.



PRODUCT SHIPPING LABEL

Code
No. 02234

02234 CLEARTEX D

NONE CONSIDERED NECESSARY

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
Solvent-dewaxed heavy paraffinic petroleum di- stillates	64742650	5.0mg/m3 TWA	95.00 - 99.99
Chlorinated olefins	68527015		1.00 - 3.99

To the best of our knowledge, none of the above listed components is hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

Health	: 0	Reactivity	: 0
Flammability	: 1	Special	: -

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:

Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals/Additives
call (409) 722-8381
Transportation Spills
call CHEMTREC (800) 424-9300

**ADDITIONAL COMMENTS**Code
No.

02234

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT
STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1985)
No critical materials present.

To determine applicability or effect of any law or regulation with respect to the product, users should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By R. T. Richards

Title

Mgr. Env. Conservation & ToxicologyDate 11-19-85

New



Revised, Supersedes

10-10-85

N.D. - Not Determined

N.A. - Not Applicable

< - Less Than

> - Greater Than

VI. HEALTH HAZARD DATA

Hazardous Polymerization Will Not Occur

Route(s) of Entry: Inhalation? YES Skin? NO Ingestion? N/A

Health Hazards (Acute and Chronic): Exposure to excessive concentrations of this product. Exposure to excessive concentrations may result in respiratory irritation. Excessive contact with eyes and/or skin may result in inflammation or abrasion. Use with adequate ventilation or with OSHA approved breathing protection.

Carcinogenicity: NTP? NO IARC Monographs? NO

Signs and Symptoms of Exposure: Respiratory Tract Irritation

Medical Conditions Generally Aggravated by Exposure: May irritate respiratory tract of persons with reduced pulmonary capacity.

Emergency and First Aid Procedures: If excessive dust occurs, avoid further contact. Irrigate eyes and skin with copious amounts of water. Seek medical attention.

VII. PRECAUTIONS FOR SAFE HANDLING AND STORAGE

Steps to be taken in case Material is released or spilled: N/A

Waste Disposal Methods: In accordance with state, federal and local regulations.

Precautions to be taken in handling and storing: In accordance with ANSI B7.1

Other Precautions: Use in proper ventilation as per OSHA Std. 29 CFR 1910.94 or use breathing protection as per OSHA Std. 29 CFR 1910.134

Respiratory Protection: Not required but advised per OSHA Std. 29 CFR 1910.134

Hazardous Components (Specific Chemicals): Not required but advised per OSHA Std. 29 CFR 1910.134

Protective Gloves: N/A

Eye Protection: Standard Safety Eyewear

Other Protective Clothing or Equipment: Use applicable protective gear and clothing.

Work/Hygienic Practices: Good personal hygiene practices should be followed.

MATERIAL SAFETY DATA SHEET

TELEPHONE NO. (312) 278-1900
DATE: APRIL 29, 1986

FIELD TOOL SUPPLY COMPANY
DIV. MARCO HOLDING CO.
2358 North Seeley Avenue
Chicago, Illinois 60647

GRINDING WHEELS
Section 23A

MATERIAL SAFETY DATA SHEET

FIELD TOOL SUPPLY COMPANY
DIV. MARCO HOLDING CO.
2358 North Seeley Avenue
Chicago, Illinois 60647

TELEPHONE NO. (312)278-1900
DATE: APRIL 18, 1986

I. PRODUCT IDENTIFICATION

TRADE NAME: 01 STEEL

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CASE NO.	OSHA PEL (Mg/M ³)	ACGIH TLV (Mg/M ³)
IRON	1309-37-1	10	5
MANGANESE	7439-96-5	(DUST) 5* (FUME) -	5* 1

* CEILING LIMITS

III. PHYSICAL DATA

BOILING POINT:	5000°F
MELTING POINT	Approx. 2500°F
SPECIFIC GRAVITY (H ₂ O=1)	Approx. 7.8-8.2(60°F)
VAPOR PRESSURE:	N/A
VAPOR DENSITY (air=1):	N/A
SOLUBILITY IN H ₂ O:	Insoluble
%VOLATILES BY VOLUME:	N/A
EVAPORATION(Butyl Acetate=1):	N/A
APPEARANCE & ODOR:	VARIOUS SHAPES, SOLID, ODORLESS METAL

IV. FIRE AND EXPLOSION DATA

FLASH POINT:	NONE	FIRE POINT:	NONE
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V. HEALTH HAZARD INFORMATION

WE DO NOT CONSIDER THIS PRODUCT IN THE FORM IT IS SOLD TO CONSTITUTE A PHYSICAL HAZARD OR A HEALTH HAZARD. SUBSEQUENT OPERATIONS SUCH AS ABRADING, MELTING, WELDING, CUTTING OR PROCESSING IN ANY OTHER FASHION THAT CAUSES A RELEASE OF DUST OR FUME MAY CAUSE SOME OF THE INGREDIENTS TO CHANGE TO A FORM WHICH COULD AFFECT EXPOSED WORKERS.

PRIMARY ROUTES OF ENTRY: Inhalation
EMERGENCY FIRST AID: Remove to fresh air, if condition continues, consult physician.
Eye Contact Flush well with running water to remove particulate. Get medical attention.
Skin Contact Brush off excess dust. Wash area well with soap water.
Ingestion Seek medical help if large quantities of material have been ingested.

BORON is not generally regarded as an industrial poison, however, no dust when inhaled in sufficient amounts is completely inert.

COBALT over exposure can cause chronic interstitial pneumonitis. Wheezing may be considered evidence of hypersensitivity to cobalt.

CHROMIUM has a high pulmonary toxicity, is an experimental cause of neoplasm(s), and is a carcinogen.

COPPER may cause metal fume fever from breathing excessive amounts of copper dust or fumes. Health effects consist of irritation of the upper respiratory tract, metallic or sweet taste, nausea, metal fume fever and, in some instances, discoloration of skin and hair.

IRON - Iron dust can cause conjunctivitis, choroiditis, retinitis, and siderosis of tissues. Iron oxide fume is generated in welding, and continued exposure to concentrations above 30 mg/M³ can cause chronic bronchitis.

MANGANESE has a high toxicity via the intraperitoneal and inhalation routes; however, prolonged exposure can cause central nervous system damage.

MOLYBDENUM can be toxic via intraperitoneal and subcutaneous routes. Care should be taken to avoid inhalation of large amounts of dust or fume. Is generally considered to exhibit a low order of toxicity.

NICKEL is a potential carcinogen and can cause neoplasm(s) via inhalation, subcutaneous, implantation, intraperitoneal, and parental mode of exposure routes.

VANADIUM may act as an irritant to the conjunctivae and respiratory tract.

TANTALUM is not generally regarded as an industrial poison, however, no dust when inhaled in sufficient amounts is completely inert.

TITANIUM is considered a physiologically inert dust, however, high concentration of oxides can cause mechanical irritation of eyes, nose and throat.

VI. REACTIVITY DATA

STABILITY:	Chemically stable
INCOMPATIBILITY:	Reacts with Strong Acids to Generate Hydrogen Gas
HAZARDOUS DECOMPOSITION PRODUCTS:	Metallic Oxides

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF RELEASE OR SPILL:	N/A	
WASTE DISPOSAL METHOD:	Solids Dust, etc.	Sale as Scrap Follow Federal, State and Local Regulations Regarding Disposal

VIII. SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS:	General - Recommended. Local - As Required.
PERSONAL PROTECTIVE EQUIPMENT:	
Respiratory Protection:	If fumes, misting or dust condition occurs and TLV as indicated in Section II is exceeded, provide NIOSH approved respirators.
Eye Protection:	Recommended.
Gloves:	As Required.
Other Clothing or Equipment:	As Required

IX. SPECIAL PRECAUTIONS

USE GOOD HOUSEKEEPING PRACTICES TO PREVENT ACCUMULATIONS OF DUSTS AND TO KEEP AIRBORNE DUST CONCENTRATIONS AT A MINIMUM.

STEEL
COLD FINISHED BAR STOCK
B 12 L 14
Question 23 & .

EARLE M. JORGENSEN CO.

Material Safety Data Sheet

Company Earle M. Jorgensen Co. 10700 Alameda Street Lynwood, California 90262	Issue Date June 25, 1990	Identification Number C Alloy & Tool
Trade Name (Common Name or Synonym) Carbon, Alloy, and Tool Steels	Emergency Phone Number (213) 567-1122	or contact your nearest Jorgensen office
Chemical Name Steel	Form Bar, Sheet, Plate, Tubing, Structurals, and Forgings	

I. INGREDIENTS

Material or Component	CAS Number	% Weight	Exposure Limits	
			OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Base Metal				
Iron (Fe)	7439-89-6	Balance	10 (Fe ₂ O ₃ Fume)	5.0 (Fe ₂ O ₃ Fume)
Alloying Elements				
Aluminum (Al)	7429-90-5	0.10 - 1.8	None Listed	5.0 as welding fume
Carbon (C)	7440-44-0	0.01 - 1.5	None Listed	None Listed
Chromium (Cr)	7440-47-3	0.01 - 12	1.0 as chrome	0.5 as chrome
Cobalt (Co)	7440-48-4	8 Max.	0.1 as cobalt and fume	0.05 as fume
Copper (Cu)	7440-50-8	0.04 - 0.7	0.2 as copper; 1.0 as dust	0.2 as fume; 1.0 as dust
Lead (Pb)	7439-92-1	0.15 - 0.35	0.05 as fume & dust	0.15 as dust and fume
Manganese (Mn)	7439-98-5	0.05 - 2.0	5 as manganese	5 as dust; 1 as fume
Molybdenum (Mo)	7439-98-7	0.01 - 1.10	15 as insoluble compds	10 as insoluble compds
Nickel (Ni)	7440-02-0	0.01 - 10	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)	7723-14-0	0.15 Max	0.1 as Phosphorous	0.1 as Phosphorous
Silicon (Si)	7440-21-3	0.15 - 2.20	None Listed	10 total dust
Sulfur (S)	7704-34-9	0.001 - 0.35	13 sulfur dioxide	5 sulfur dioxide
Tungsten (W)	7440-33-7	0 - 18	None Listed	5 insoluble compds
Vanadium (V)	7440-82-2	0.01 - 1.0	0.5 dust; 0.1 fume	0.05 dust and fume
Zinc (Zn) coating	1314-13-2	10 Max	5.0 as fume	5.0 as fume

Note: The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

II. PHYSICAL DATA

Material is (At Normal Conditions):			Appearance and Odor	
<input type="checkbox"/> Liquid	<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Gas	<input type="checkbox"/> Other	Gray-Black With Metallic Lustre — Odorless
Acidity/Alkalinity	Approx	Melting Point	Specific Gravity (H ₂ O = 1) — 7	Vapor Pressure
ph = NA		2750°F	Solubility in water (% by weight) — NA	(mm Hg at 20°C)
		Boiling Point NA °F		NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection NIOSH approved dust/mist/fume respirator should be used during welding or burning if OSHA PEL or TLV is exceeded.	Hands, Arms, and Body Use appropriate protective clothing such as welders aprons & gloves when welding or burning. Check local codes.
Eyes and Face Safety glasses should always be worn when grinding or cutting; face shields should be worn when welding or burning.	Other Clothing and Equipment As required for protection depending on the operation and safety codes.

IV. EMERGENCY MEDICAL PROCEDURES

Inhalation:	Remove to fresh air; if condition continues, consult physician.
Eye Contact:	Immediately flush well with running water to remove particulate; get medical attention.
Skin Contact:	If irritation develops, remove clothing and wash well with soap and water. If condition persists, seek medical attention.
Ingestion:	If significant amounts of metal are ingested, seek medical attention.

V. HEALTH/SAFETY INFORMATION

HEALTH

Steel products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, burning, sawing, brazing, grinding, and possibly machining, which results in elevating the temperature of the product to or above its melting point or results in the generation of airborne particulates may present hazards. The above operations should be performed in well ventilated areas. The major exposure hazard is inhalation.

Effects of overexposure are as follows:

Acute: Excessive inhalation of metallic fumes and dusts may result in irritation of eyes, nose, and throat. Also high concentrations of fumes and dusts of iron-oxide, manganese, copper, zinc, & lead may result in metal fume fever. Typical symptoms consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever, and usually last from 12 to 48 hours.

Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element:

Iron (Iron-oxide) - Pulmonary effects, siderosis.

Manganese - Bronchitis, pneumonitis, lack of coordination, central nervous system.

Chromium - Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract, and possibly cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fume induces human cancer.

Nickel - SAME AS CHROMIUM.

Copper - Pulmonary effects, nasal and paranasal sinus, skin and liver.

Vanadium - May affect lungs. May affect blood pressure as vanadium pentoxide.

Cobalt - Inhalation of cobalt dust may cause an asthma-like disease with cough and dyspnea.

Molybdenum - Pain in joints, hands, knees and feet.

Tungsten - Some evidence of pulmonary involvement such as cough.

Lead - Prolonged exposures can cause behavioral changes, kidney damage, periphery neuropathy characterized by decreased hand-grip strength and adverse reproductive effects.

Zinc - None reported.

Medical conditions generally aggravated by exposure would be dermatitis and pulmonary disease or disorders.

Occupational Exposure Limits

See Ingredients Section I. Chromium and nickel have been identified by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) as potential carcinogens.

FIRE AND EXPLOSION

Flash Point	NA	°F	Auto Ignition Temperature	NA	°F	Flammable Limits in Air	Extinguishing Media
						Lower NA % Upper NA %	NA
Fire and Explosion Hazards			Steel products in their natural state do not present a fire or explosion hazard.			Extinguishing Media Not to be Used	
						NA	

REACTIVITY

Stability		Incompatibility (Materials to Avoid)		Stable under normal conditions of use, storage and transport. Reacts with strong acids to form hydrogen gas. At temperatures above melting point, metallic oxide fumes may be liberated.	
<input checked="" type="checkbox"/> Stable	<input type="checkbox"/> Unstable				
Conditions to Avoid					
Non-ventilated areas when cutting, welding, burning, or brazing; avoid generation of airborne dusts and fumes.		Keep Area Well Ventilated			
Hazardous Decomposition Products					
Metallic oxides.					

VI. ENVIRONMENTAL

Spill or leak procedures	Special Precautions: Use good housekeeping practices to prevent accumulation of dust and to keep airborne dust to a minimum. Avoid breathing metal fumes or dust.		
NA			
Waste Disposal Method	Dust, etc. — follow federal, state, and local regulations regarding disposal.		

VII. ADDITIONAL INFORMATION

Disclaimer	The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty, express or implied regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.		
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MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

MANUFACTURER'S NAME:	CHADWICK & TREFETHEN, INC.	DATE:	JUNE 1988
ADDRESS:	50 BORTHWICK AVENUE	PHONE:	(603) 436-2568
	PORTSMOUTH, NH 03801	FAX:	(603) 436-2417
TRADE NAME:	Critchley Reamers		
CHEMICAL NAME:	(Generic): Ferrous Alloys		
COMMON NAME:	High Speed, Tool & Die Steel, Carbon & Alloy Steels		

II. HAZARDOUS INGREDIENTS

The terms "hazardous" and "hazardous materials" as used within this MSDS should be interpreted as defined by, and in accordance with, the OSHA Hazard Communication Standard (29 CFR Part 1910, 1200) including cited Appendices, Lists, References, etc., all of which are hereby incorporated by reference.

MATERIAL OR COMPONENT	CAS. NO.	OSHA PEL (Mg/M ³)	ACGIH TLV (Mg/M ³)
COBALT	7440-48-4	0.1	0.1
CHROMIUM	7440-47-3	1.0	—
IRON	1309-37-1	10	.50
MANGANESE	7439-96-5 (Dust) (Fume)	5 (Ceiling) —	5 (Ceiling) 1
MOLYBDENUM	7439-98-7	15	10
NICKEL	7440-02-0	1	1
VANADIUM	1314-62-1 (Dust) (Fume)	.5 (Ceiling) .1 (Ceiling)	.05 .05
TITANIUM	13463-67-7	15	5
CARBON	1333-86-4	3.5	3.5 (As Carbon Black)
TUNGSTEN	7440-33-7	—	5
SILICON	7440-21-2 (Dust)	—	5
ALUMINUM	7429-90 (Dust) (Fume)	— —	10 5

III. PHYSICAL DATA

BOILING POINT:	5000°F	MELTING POINT:	Approx. 2500°F
SPECIFIC GRAVITY (H ₂ =1):	Approx. 7.8-8.2 (60°F)	VAPOR PRESSURE:	N/A
VAPOR DENSITY (AIR=1):	N/A	SOLUBILITY IN H ₂ O:	Insoluble
% VOLATILES BY VOLUME:	N/A	EVAPORATION (BUTYL ACETATE=1):	N/A
APPEARANCE & ODOR:	Various Shapes, Solid, Odorless Metal		

IV. FIRE AND EXPLOSION DATA

FLASH POINT:	None	FIRE POINT:	None
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V. HEALTH HAZARD INFORMATION

WE DO NOT CONSIDER THIS PRODUCT IN THE FORM IT IS SOLD TO CONSTITUTE A PHYSICAL HAZARD OR A HEALTH HAZARD. SUBSEQUENT OPERATIONS SUCH AS ABRADING, MELTING, WELDING, CUTTING OR PROCESSING IN ANY OTHER FASHION MAY PRODUCE POTENTIALLY HAZARDOUS DUST OR FUME WHICH CAN BE INHALED, SWALLOWED, OR COME IN CONTACT WITH THE SKIN OR EYES.

PRIMARY ROUTES OF ENTRY:	INHALATION	EMERGENCY FIRST AID:	Remove to fresh air, if condition continues, consult physician.
	Eye Contact		Flush well with running water to remove particulate. Get medical attention.
	Skin Contact		Brush off excess dust. Wash area well with soap and water.
	Ingestion		Seek medical help if large quantities of material have been ingested.

EFFECTS OF EXPOSURE: No toxic effects would be expected from exposure to the solid forms of specialty steel. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, brazing or welding may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Subpart Z. (See Section II).

V. HEALTH HAZARD INFORMATION (Con.'t)

EXPOSURE LIMITS: Section II lists specific ingredients and permissible exposure limits.

IMPORTANT: Determine actual exposure by industrial hygiene monitoring.

POSSIBLE SIGNS AND SYMPTOMS OF EXPOSURE TO DUST, WELDING FUME AND GASES:

SHORT TERM EXPOSURE: Metallic taste; nausea, tightness of chest; fever; irritation of eyes, nose, throat and skin; loss of consciousness/death due to welding gases or lack of oxygen.

LONG TERM EXPOSURE: There are no adverse effects from the products in their solid form. Adverse effects may or may not result from long-term (chronic) exposure to dust, fume, gases, etc. that occur by way of subsequent operations on the product. Some studies would associate one (or more) of the constituents (per Section II) with the potential for neurologic, pulmonary, respiratory, skin or other disease. Chromium, cobalt and nickel in various chemical compounds have been identified as suspect human carcinogens by the I.A.R.C., N.T.P. Annual Report. We believe there are no reliable scientific studies which show that workers exposed to operations upon our alloys suffer increased incidence of lung cancer or other disease because of their exposure to the forms of chromium, nickel or other elements in our products.

AGGRAVATION OF PRE-EXISTING RESPIRATORY OR ALLERGIC CONDITIONS MAY OCCUR IN SOME WORKERS.

VI. REACTIVITY DATA

STABILITY: Chemically Stable

INCOMPATIBILITY: Reacts with Strong Acids to Generate Hydrogen Gas

HAZARDOUS

DECOMPOSITION PRODUCTS: Metallic Oxides

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF RELEASE OR SPILL:

N/A

WASTE DISPOSAL METHOD:

Solids —

Sale as Scrap for Reuse

Dust, etc. —

Follow Federal, State and Local Regulations Regarding Disposal

VIII. SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS:

General — Recommended (To keep airborne concentration of dust and fumes below ACGIH TLV'S)

Local — As Required

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory Protection:

If Fumes, misting or dust condition occurs and T.L.V. as indicated in Section II is exceeded, provide NIOSH approved respirators.

Eye Protection:

Recommend approved safety glasses or goggles when working with dusty material.

Gloves:

As Required.

Other Clothing or Equipment:

As Required.

IX. SPECIAL PRECAUTIONS

USE GOOD HOUSEKEEPING PRACTICES TO PREVENT ACCUMULATIONS OF DUSTS AND TO KEEP AIRBORNE DUST CONCENTRATIONS AT A MINIMUM.

THIS MATERIAL IS POTENTIALLY CONTAMINATED WITH COATINGS SUCH AS OILS FOR PRESERVATIVES AND OTHER CONTAMINANTS. IF THE MATERIAL IS CONTAMINATED, SPECIAL PRECAUTIONS (SUCH AS PROCESS CONTROL AND PERSONAL PROTECTIVE EQUIPMENT APPROPRIATE TO THE NATURE OF THE SUSPECTED CONTAMINANTS SHOULD BE TAKEN TO AVOID RESULTING EXPOSURES WHEN HANDLING, CUTTING [THERMAL OR MECHANICAL] AND/OR HEATING OR MELTING.

While the information set forth on this material safety data sheet is believed to be accurate, as of the effective date, Teledyne Landis Machine makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury of any kind which may result from or arise out of the use or reliance on the information by any person.

N/A = NOT APPLICABLE

Question 23A

STEEL


**Crucible
Specialty Metals**

A Division of Crucible Materials Corporation

P.O. Box 977, Syracuse, New York 13201-0977

Supplemental Chemistry Sheet

 A supplement to the Crucible General
Material Safety Data Sheet

M-2 HIGH SPEED

MAY 31, 1988

 PLANT MGR. / SAFETY DIR.
CHADWICK TREFETHEN INC
BOTHWICK INDUSTRIAL PARK
PORTSMOUTH NH 03801

 ACCT. NO.
137475-01

This Supplemental Chemistry Sheet lists the ingredients for the grade or type of steel you have received from Crucible.

Refer to the General Material Safety Data Sheet sent to your location after November 18, 1985. It will have details of the component elements in our steels, the potential hazards that might arise in processing the material, protection and first aid information, and other relevant data. Together, the General Material Safety Data Sheet and the Supplemental Chemistry Sheet make up the complete Material Safety Data Sheet.

This SCS will have the maximum level of each alloying element that is present and the maximum level of Nickel and Chromium if present as a residual over 0.1%. Levels of 0.1%, 0.5%, and whole percentages will be used for both alloying and residual elements. For example, if the level of Carbon is 1.20%, the SCS will state Carbon <2.0; if Nickel is at a level of 0.15%, the SCS will state Nickel <0.5. Actual chemistry is available upon request by contacting your local Crucible sales district.

This SCS will apply to any subsequent shipment for the same grade or type of material. You will be advised of any major chemistry changes when a subsequent shipment is made.

Questions should be directed to the Quality Assurance Department for Crucible Specialty Metals. Telephone: (315) 487-4111.

Crucible Specialty Metals

GRADE NAME

REX M2

AISI NAME

M2

C	MN	SI	NI	CR	V	W	MO	FE
<1.0	<1.0	<1.0	<1.0	<5.0	<3.0	<7.0	<6.0	BAL

MATERIAL SAFETY DATA SHEET

Required under USOL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Spartan Chemical Co., Inc.		EMERGENCY TELEPHONE NO. (419) 531-5551
ADDRESS (Number, Street, City, State, and ZIP Code) 110 N. Westwood Ave., Toledo, Ohio 43607		
CHEMICAL NAME AND SYNONYMS n/a	TRADE NAME AND SYNONYMS THE CUTTER	
CHEMICAL FAMILY n/a	FORMULA n/a	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	n/a	SPECIFIC GRAVITY (H ₂ O=1)	0.99
VAPOR PRESSURE (mm Hg.)	unk.	PERCENT VOLATILE BY VOLUME (%)	25
VAPOR DENSITY (AIR=1)	unk.	EVAPORATION RATE (but. ace. = 1)	Less than 1
SOLUBILITY IN WATER	Forms emulsion		pH (10% emulsion) 10.2-10.4
APPEARANCE AND ODOR	Transparent green oil		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Greater than 230°F. COC	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA Carbon dioxide, dry chemical, foam or water mist.			
SPECIAL FIRE FIGHTING PROCEDURES None			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	Unknown
EFFECTS OF OVEREXPOSURE	Unknown
EMERGENCY AND FIRST AID PROCEDURES	
INTERNAL: If swallowed, give fruit juices or vinegar. Do not induce vomiting. Call a physician. EYES: Irrigate well w/water. If irritated, call a physician.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID n/a
	STABLE	XX	
INCOMPATIBILITY (Materials to avoid)		strong oxidizers	
HAZARDOUS DECOMPOSITION PRODUCTS		Carbon dioxide, carbon monoxide, if burned.	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID n/a
	WILL NOT OCCUR	XX	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Clean up using an oil absorbent.	
WASTE DISPOSAL METHOD	
Assure conformity with applicable disposal regulations. Dispose of absorbed material at an approved waste disposal site or facility.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) Nothing special required.			
VENTILATION	LOCAL EXHAUST	Preferred	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES Not necessary		EYE PROTECTION Preferred	
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Nothing special	
OTHER PRECAUTIONS	n/a

MILLING COOLANT
Question 23 h



Spartan Chemical Co., Inc.

110 N. Westwood Avenue / P.O. Box 3495 / Toledo, Ohio 43607 / (419) 531-5551
WATS 1-800-537-8990 OHIO WATS 1-800-537-3207 TELEX 284003 SPTL

TO WHOM IT MAY CONCERN:

This is to certify that Spartan's ~~The Cutter~~ does not contain:

Phenols
Creosols
PCB's (polychlorinated biphenyls)
CFC's (chlorofluorocarbons)
Nitrite
Nitrates
Free chlorine
Active sulphur
Phosphates
Chromates
Boron
Fluorides
Methanol

Heavy Metals

Tin
Bismuth
Lead
Mercury
Arsenic
Antimony
Cadmium
Copper
Molybdenum
Silver
Zinc

If you have any questions or need further assistance, please do not hesitate to contact me.

Yours very truly,

SPARTAN CHEMICAL CO., INC.

Thomas L. Hause

Thomas L. Hause
Industrial Development Chemist

TLH:jh



Manufacturers of Guaranteed Industrial Chemicals

PROTECTIVE OIL

Question 23h

RUST-BAN 392

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

DATE ISSUED 7/1/85

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A. P.O. BOX 2180 HOUSTON, TX 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
RUST-BAN 392

PRODUCT CODE
280392 - 04114

CHEMICAL NAME
Petroleum Rust Preventive

CAS NUMBER
Complex Mixture
CAS Number not applicable

PRODUCT APPEARANCE AND ODOR
Clear liquid, amber color
Mild mineral spirits odor

EMERGENCY TELEPHONE NUMBER
(713) 656-3424

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS

CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
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Hydrotreated heavy naphtha, petroleum	Greater than 92%
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Proprietary additives	Approximately 7%
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EXPOSURE LIMIT FOR TOTAL PRODUCT
100 ppm (570 mg/m3) for an 8-hour workday

BASIS
Recommended by the American Conference of Governmental Industrial Hygienists (ACGIH)

C. EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

If splashed into the eyes flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN CONTACT

In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INHALATION

If overcome by vapor, remove from exposure and call a physician immediately. If breathing is irregular or has stopped, start resuscitation, administer oxygen, if available.

INGESTION

If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION**FLASH POINT (MINIMUM)**

38°C (100°F)

ASTM D 56, Tag Closed Cup

AUTOIGNITION TEMPERATURE

Greater than 260°C (500°F)

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)

Estimated values: Lower Flammable Limit 0.9%

Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES

Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Eighth Edition (1984).

Use dry chemical, foam or carbon dioxide. Water may be ineffective, but water should be used to keep fire-exposed containers cool. If a leak or spill has ignited, use water spray to disperse the vapors and to protect men attempting to stop a leak. Water spray may be used to flush spills away from exposures. Minimize breathing gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

NOTE: The inclusion of the phrase "water may be ineffective" is to indicate that although water can be used to cool and protect exposed material, water may not extinguish the fire unless used under favorable conditions by experienced fire fighters trained in fighting all types of flammable liquid fires.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS

Fumes, smoke, carbon monoxide, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING

"Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

E. HEALTH AND HAZARD INFORMATION**VARIABILITY AMONG INDIVIDUALS**

Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)

High vapor concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, and may have other central nervous system effects.

NATURE OF HAZARD

Prolonged or repeated skin contact with this product tends to remove skin oils possibly leading to irritation and dermatitis.

Product contacting the eyes may cause eye irritation.

TOXICITY INFORMATION

Reports of animal studies using both sexes of several species have shown that kidney effects can occur in male rats after prolonged and repeated inhalation exposures to light hydrocarbon vapors of the general type represented by this product. While the effects are of a low order of severity in animals, the implications of these results for humans have not yet been determined.

A lifetime mouse skin painting study with an earlier formulation of this product showed that 6 mice of an original group of 50 developed skin cancers. The substance was painted on shaved backs of mice three times a week for the lifetime of the animals with no washing between applications. Test data from the current product are not available; however, results from the previous product suggest there may be a potential risk of skin cancer from prolonged or repeated skin contact with this product in the absence of good personal hygiene.

Product has a low order of acute oral toxicity, but minute amounts aspirated into the lungs during ingestion may cause severe pulmonary injury or death.

F. PHYSICAL DATA

The following data are approximate or typical values and should not be used for precise design purposes.

BOILING RANGE

156-202°C (313-396°F)

SPECIFIC GRAVITY (15.6 C/15.6 C)

0.79

MOLECULAR WEIGHT

140

pH

Essentially neutral

POUR, CONGEALING OR MELTING POINT

-36°C (-33°F)

Pour Point by ASTM D 97

VISCOSITY

1.14 cSt @ 40°C ASTM D 445

VAPOR PRESSURE

Less than 10 mm Hg @ 25°C

VAPOR DENSITY (AIR = 1)

Approximately 4.8

PERCENT VOLATILE BY VOLUME

93

EVAPORATION RATE @ 1 ATM. AND 25 C (77 F)

(n-BUTYL ACETATE = 1)

Less than 0.1 (solvent portion only)

SOLUBILITY IN WATER @ 1 ATM. AND 25 C (77 F)

Negligible; less than 0.1%

G. REACTIVITY

This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite.

H. SPILL OR LEAK PROCEDURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Shut off and eliminate all ignition sources. Keep people away. Recover free product. Add sand, earth or other suitable absorbent to spill area. Minimize breathing vapors. Minimize skin contact. Ventilate confined spaces. Open all windows and doors. Keep product out of sewers and

watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas. Assure conformity with applicable governmental regulations. Continue to observe precautions for volatile, combustible vapors from absorbed material.

I. PROTECTION AND PRECAUTIONS

VENTILATION

Provide greater than 60 feet per minute hood face velocity. Use only with ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. Use explosion-proof equipment. No smoking or open lights.

RESPIRATORY PROTECTION

Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES

Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION

Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT

Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS

Keep containers closed when not in use. Do not handle or store near heat, sparks, flame or strong oxidants. To prevent fire or explosion risk from static accumulation and discharge, effectively ground product transfer system in accordance with the National Fire Protection Association standard for petroleum products.

PERSONAL HYGIENE

Minimize breathing vapor or mist. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean and dry before reuse. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION

For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents, DOT P 5800.3.

The information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use.

**FOR ADDITIONAL INFORMATION ON HEALTH
EFFECTS CONTACT:**

DIRECTOR OF INDUSTRIAL HYGIENE
EXXON COMPANY, U.S.A.
P. O. BOX 2180 ROOM 2737
HOUSTON, TX 77252-2180
(713) 656-2443

FOR OTHER PRODUCT INFORMATION CONTACT:

MANAGER, MARKETING TECHNICAL SERVICES
EXXON COMPANY, U.S.A.
P. O. BOX 2180 ROOM 2455
HOUSTON, TX 77252-2180
(713) 656-5949

FOR SEPARATING

OIL FROM WATER

SODIUM BISULFATE

PRODUCT INFORMATION



CINCINNATI
MILACRON

PROCEDURE FOR EMULSION BREAKING USING SODIUM BISULFATE

Sodium Bisulfate is a free flowing powdered chemical which can be used to completely separate semi-synthetic and soluble oil products. Sodium Bisulfate is a commercial grade chemical which can be purchased from a chemical manufacturer or laboratory supply company.

The method offers the user of water soluble metalworking fluids a positive way of separating synthetic and petroleum based organic compounds from water solutions when these solutions are to be disposed of.

Due to restrictions placed on the discharge of oils or Freon soluble material directly or indirectly into the sewer system or waterway, the difficulty of disposing of such spent solutions can be expensive if taken away by hauler or treated with chemical methods such as acids, polymers, or alum which must be done very exactly to be effective. With the use of Sodium Bisulfate the overall volume is reduced to 1/20 to 1/30 of its original volume.

PROCEDURE:

1. Employ standard safety protection when doing this operation (e.g. protective gloves, goggles, proper ventilation, etc.).
2. Pump spent metalworking fluid into 55-gal. drum or holding tank. Skim off any free floating oil before starting procedure.
3. Using good agitation (electric or pneumatic mixer) add Sodium Bisulfate gradually into the solution.

Soluble Oils - 12-15 lbs./50 gallons

Semi-Synthetics - 10-12 lbs./50 gallons

4. Stir solution until dissolved (10 to 15 minutes).
5. Wait 24 to 72 hours and the oils and organics will form a surface layer separated from the water layer. The more emulsified tramp oil present the more difficult some solutions may be to separate.
6. Skim the surface layer with a scoop or automatic skimmer and place this surface residue into a separate storage container.
7. The pH of the water layer should be adjusted from its pH of 2 to a pH of 6.0 with Sodium Hydroxide (NaOH) before it is discharged.

When the drums are filled with the discarded surface layer, this can be hauled away or incinerated. Only the concentrate is being disposed of, not the water. Costs are reduced and the sewer discharges are free of harmful residues.

CINCINNATI MILACRON RECOMMENDS THE USE OF THIS MATERIAL FOR THIS PROCEDURE. THE TECHNICAL INFORMATION AND SUGGESTIONS FOR USE CONTAINED HEREIN ARE BELIEVED TO BE RELIABLE BUT THEY ARE NOT TO BE CONSTRUED AS WARRANTIES AND NO PATENT LIABILITY CAN BE ASSUMED.

PAC TOOL, INC.
Production Abrasives & Cutting Tools
21 Main St. Genie Square, Rochester, N.H. 03867
603-355-2131

DATA SHEET

SODIUM BISULFATE ANHYDROUS GLOBULAR TECHNICAL

PROPERTIES

Formula	— NaHSO_4 , molecular weight 120
Common Names	— Sodium Bisulfate, Sodium Hydrogen Sulfate, Sodium Acid Sulfate, Nitre Cake
Physical Form	— Dry (Anhydrous), crystalline solid; spherical shape (bead) approx. 0.75 mm diameter (1/32 in.)
Water Solution	— Material is readily soluble in water—forming solutions of sulfuric (H_2SO_4) acid.

TYPICAL ANALYSIS

Assay, as NaHSO_4 , Wt. %	—	94.7
Sodium Sulfate, as Na_2SO_4 , Wt. %	—	5.0
Moisture, as H_2O , Wt. %	—	0.2
Iron, as Fe, Wt. %	—	0.04
Free Acid, as H_2SO_4	—	Nil
Acidity, as H_2SO_4 , Wt. % (when completely dissolved in water)	—	38.7
Color	—	Off-white or light yellow
Bulk Density, Loose	—	82 to 84 lb./ft. ³ 1.318-1.35 kg/l
Particle Size:		
1. Cumulative—USS Screen	On 10, Wt. %	0.0
	On 20, Wt. %	32.0
	On 40, Wt. %	94.0
	On 60, Wt. %	99.0
	On 100, Wt. %	99.8
	Through 100, Wt. %	0.2
2. Non-cumulative—USS Screen	On 10, Wt. %	0.0
	Through 10, on 20, Wt. %	32.0
	Through 20, on 40, Wt. %	62.0
	Through 40, on 60, Wt. %	5.0
	Through 60, on 100, Wt. %	0.8
	Through 100, Wt. %	0.2

JONES-HAMILTON CO.

30354 TRACY ROAD, WALBRIDGE, OHIO 43465 • (419) 666-9838 TWX 810-442 1675 JONES HAM WABG